A NEW CANADIAN HEALTH CARE INITIATIVE IN TANZANIA

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Abstract • Résumé

One of the main conclusions of the World Bank's *World Development Report 1993 — Investing in Health* was that equitable access to a package of essential clinical and public health services could significantly reduce the overall burden of disease in low-income countries. The report argued that more rational and effective decisions with regard to the allocation of limited resources could be made on the basis of burden-of-disease and cost-effectiveness analyses. In collaboration with the Canadian International Development Agency and several other organizations, the International Development Research Centre has developed the Essential Health Interventions Project to test the feasibility of this approach in a few districts in Tanzania. Outcome assessment will focus on improved planning at the district level and on changes to the health status of the study population.

Une des principales conclusions tirées par la Banque mondiale dans son *Rapport sur le développement dans le monde de 1993* intitulé *Investir dans la santé* était qu'un accès équitable à un ensemble de services cliniques et de santé publique essentiels pourrait réduire considérablement le fardeau de la maladie dans les pays à faible revenu. On soutient dans le rapport que des décisions plus rationnelles et efficaces sur la répartition de ressources limitées pourraient être fondées sur des analyses relatives au fardeau de la maladie et sur des analyses de rentabilité. En collaboration avec l'Agence canadienne de développement international et plusieurs autres organisations, le Centre de recherches pour le développement international a lancé le Projet sur les interventions essentielles en santé pour vérifier la faisabilité de ces stratégies dans quelques districts de la Tanzanie. L'évaluation des résultats portera avant tout sur l'amélioration de la planification au niveau des districts et sur l'évolution de l'état de santé de la population à l'étude.

Health care systems in low-income countries are facing enormous problems. These include high incidence rates of communicable diseases such as malaria and cholera, the emergence of HIV infection and AIDS, the re-emergence of tuberculosis, the increasing drug resistance of certain infectious agents, rising prevalence rates of chronic diseases, and major disasters (including civil wars) that have resulted in unprecedented numbers of refugees. These problems are escalating costs at a time when public health budgets and international assistance are decreasing under the pressure of global economic conditions. In addition, structural changes to health care programs have led to public spending cuts and an increased reliance on user fees. These factors have contributed to a worsening of inequities in access to services, the declining health status of populations and the demoralization of health care workers.[1-3]

The World Bank's landmark study, *World Development Report 1993: Investing in Health*,[4] made a series of proposals for addressing these problems. One such proposal was that the planning and development of district health services should be based on burden-of-disease and cost-effectiveness analyses. To test the feasibility of this approach the International Development Research Centre (IDRC) in collaboration with the Canadian International Development Agency (CIDA), the World Health Organization (WHO), UNICEF, the United Nations Development Programme, the World Bank and the Edna McConnell Clark Foundation have initiated a program in Tanzania to define and introduce a package of low-cost essential interventions in two districts and monitor their impact.

WORLD DEVELOPMENT REPORT 1993: INVESTING IN HEALTH

The 16th in a series of annual world-development reports, *Investing in Health* was the first to focus exclusively

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on health. The product of several years of consultations, commissioned studies and background papers, it asserted that improving and maintaining the health of the population is an integral and vital component of any nation's development agenda. The report also suggested that improving population health is a worthwhile investment for even the poorest countries because it contributes to economic growth by reducing production losses due to worker absenteeism, increasing the productivity of land through the eradication of disease vectors, increasing school enrolment and improving students' capacity to learn through improved health and nutrition in early childhood and freeing up resources that would otherwise be spent on medical care.

The report analysed problems in health care systems that hamper the delivery of services and the reduction of mortality and disability. These include misallocation of funds toward interventions with low cost-effectiveness at the expense of highly cost-effective interventions; inequities in access whereby poor people lack basic health services; inefficiencies in planning, deployment of health care workers, use of facilities and purchasing of supplies; and unnecessary reliance on specialized personnel, equipment and facilities and on sophisticated tests and treatments.

The report noted that in low-income countries these problems are often compounded by highly centralized decision making, wide fluctuations in budgetary allocations and low motivation of facility managers and health care workers.[4] It argued on ethical and economic grounds that there is a role for government in the provision of health care services and proposed that cost-effectiveness be the guiding principle for resource allocation.

The report proposed that governments adopt three policies for the improvement of population health:

- To foster an environment that enables households to improve health. This would include implementing economic growth policies that benefit poor people, investing in education and promoting the rights and status of women.
- To promote diversity and competition and give incentives for cost containment. This could be achieved through the provision of private insurance for nonessential clinical services and the delivery of clinical services by the private sector even when they are publicly financed. (Although, in our view, this policy direction raises the controversial possibility of a two-tiered health system that may increase inequities of access, particularly in low-income countries, this debate is beyond the scope of our project in Tanzania.)
- To rationalize health care expenditures by reducing spending for tertiary care facilities, emphasizing the financing and delivery of cost-effective interventions (such as public health initiatives for infectious disease control, health education, AIDS prevention and improvement of the household environment), ensuring delivery of a package of essential clinical services tailored to local needs and improving management of services through decentralization.

The report postulated that the provision of essential clinical services and public health interventions to 80% of the population in low-income countries would bring about a 32% reduction in the burden of disease in those countries. The clinical package could include short-course chemotherapy for tuberculosis, prenatal and obstetric care, and treatment of sexually transmitted diseases, infection and minor trauma. The public health package could include programs for vaccination, health promotion and disease prevention. Although these packages, including infrastructure requirements, would cost roughly only $12 (US) per capita per year,[4] this would amount to more than the health budgets of many low-income countries. Current estimates of per capita health care spending in representative sub-Saharan countries, for example, are as follows (in US dollars): Ethiopia and Tanzania $4, Mozambique $5, Uganda $8, Malawi $11, Kenya $16 and Zambia $17.[5]

The report concluded with a recommendation that renewed emphasis be given to providing basic schooling for girls, strengthening public health programs and supporting the expansion of public financing for essential clinical services.[4] It called on the international community to increase health care assistance for low-income countries and to contribute to further research on the main health problems of low-income countries and on health policy reform.

Burden of disease and cost effectiveness

The authors of *Investing in Health* wished to estimate the burden of disease with the use of a common or universal measure and to estimate the cost-effectiveness of interventions aimed at various conditions that contribute to the burden. The measurement introduced by the authors to accomplish this was the disability-adjusted life-year (DALY).

Burden of disease is defined as the total amount of healthy life lost over a time, whether to premature death or to physical or mental disability.[6] DALY measures both the burden of disease and the effectiveness of health interventions as indicated by reductions in disease burden. The underlying concept is to include both suffering and mortality in measuring burden of disease. DALY is calculated as the present value of the future years of disability-free life that are lost as the result of disability or premature death or disability occurring in a population in a

given year.[4] As a common measure, DALY allows for comparisons between populations.

The authors of *Investing in Health* noted that the ratio of deaths to disability in the total burden of disease varies greatly from one part of the world to another. In sub-Saharan Africa, for example, most of the burden of disease results from death, whereas in Europe and North America a greater proportion of the burden of disease results from disability. The authors of the report used the results of a joint study by WHO and the World Bank that quantified the impact, in terms of loss of healthy life, from over 100 diseases and injuries as the basis for their global burden-of-disease survey. They then used their subsequent DALY calculations to identify which interventions should be included in the package of essential services. They argued convincingly for the use of such analytic methods to assist governments to establish priorities for the allocation of limited health care funds so that cost-effective interventions of benefit to large segments of the population would be emphasized.

The Essential Health Interventions Project

Participants

In October 1993 the IDRC convened an international conference in Ottawa to meet with representatives of WHO, the World Bank and other organizations to consider the findings and recommendations presented in *Investing in Health*.[7] The conference participants decided that the hypothesis that burden-of-disease and cost-effectiveness analyses should provide the basis for health services planning in low-income countries should be tested. This led to the development of the Essential Health Interventions Project (EHIP).

Participants at the meeting also called for strengthened partnerships between institutions in low-income and industrialized countries and international organizations to facilitate national efforts toward health system reform. In light of this recommendation, and in view of the complexity and scope of the project, EHIP was developed as a collaborative effort involving several organizations. Proposals for participation in EHIP were received from the ministries of health in several countries in East Africa. Tanzania was selected to participate in the 4-year pilot project, which will be carried out in two districts.

Although the authors of *Investing in Health* presented a comprehensive agenda for improving health in low-income countries, EHIP will focus on two items: the financing and delivery of essential clinical and public health intervention packages and the improvement of health services management at the district level. If the project succeeds in demonstrating that resource-allocation decisions can be made rationally and effectively on the basis of district-level analyses and lead to improvements in population health, it will have important implications for the future development of health care systems in the rest of Tanzania and in other countries.

In many countries health care planning decisions are based on a potpourri of sometimes incomplete statistics or are prompted by current health crises and pressure from donors who support vertical (e.g., disease-specific) programs by providing funding and expertise. A critical focus of the Tanzanian project will be to rationalize the planning of public health programs using burden-of-disease and cost-effectiveness analyses. Although the need for community input is not referred to in *Investing in Health*, the analytic approach to planning that it proposes will need to accommodate community perceptions and preferences for health services if the project is to gain local acceptance. Accordingly, the most important partners working with the IDRC are the Tanzanians. The Ministry of Health in Tanzania is responsible for the in-country management of the project, including design, development of integrated packages, district-level planning and service delivery. The Tanzanian government will provide policy advice in relation to the health reform process already under way in the country. Central Tanzanian ministries and the district health management teams of the participating districts will be involved.

As the authors of *Investing in Health* note, cost-effectiveness analyses of specific public health interventions have traditionally taken a disease-by-disease approach. This approach has not always been of help to policymakers and planners faced with the task of allocating limited funds. Decision-makers must now adopt a more integrated strategy, and the feasibility of such a strategy depends on political, administrative and logistic considerations — all of which are at the centre of health care system reform.[8]

A major challenge for EHIP will be to test how an integrated strategy for health care system reform that accommodates these considerations can be established and sustained. The assistance of various agencies in addition to the cooperation of the Tanzanian government will be instrumental in achieving this goal. WHO will provide policy advice and technical expertise with respect to project design and implementation. The World Bank's human development department will provide technical expertise in project design, implementation and evaluation. Moreover, the World Bank will support the development of a regional centre for analysis of health care systems to strengthen the capacity of EHIP's analytic approach in East Africa as a whole. UNICEF, which has been involved for many years in delivering child-survival programs at the district level in low-income countries, is also providing policy advice and

expertise in implementation. The Edna McConnell Clark Foundation is providing policy guidance in the development and implementation of the project, and exploratory discussions of potential collaboration are taking place with the United Nations Development Programme.

Objectives

The specific objectives of EHIP are (a) to test the impact of the delivery of a package of essential health interventions by measuring costs and evaluating effectiveness, (b) to determine information, management, policy and implementation requirements for the delivery of these interventions and (c) to ensure that the continued delivery of these interventions is sustainable.

To achieve these objectives EHIP will address the following key questions.

- In the context of decentralization how and to what extent can district health-management teams establish priorities and plan resource allocation according to local estimates of burden of disease and knowledge of the cost-effectiveness of relevant interventions?
- How and to what extent can district health plans be translated into the delivery and use of essential health interventions?
- How, to what extent and at what cost do these plans and their delivery have an impact on the burden of disease?

Design

EHIP is comprised of a number of components. These include developing estimates of burden of disease and cost-effectiveness, training and motivating district health-management teams to incorporate these estimates into planning and priority setting, and strengthening the district health workforce and infrastructure to facilitate the provision of essential services and to support research. Realizing these objectives in an integrated manner will help to increase the study districts' sustainable capacity to deliver essential health care services.

An ideal intervention study is one in which a control population exists, interventions are discrete and have measurable outcomes and confounders, and effect modifiers are controlled for either in the study design or in the analysis. These criteria are best met by randomized controlled trials, but these are often difficult to conduct in the context of a community intervention. Difficulties can arise in obtaining consent from a control district where burden-of-disease measurements would be made but no changes in planning or service provision would occur. Governments are rightly suspicious of "development experiments" that offer no immediate benefit to the control population.

For these and other reasons EHIP has adopted the before–after study design that has become standard in development projects. This approach consists of a comprehensive baseline study phase (in which existing levels of service, modes of delivery, burden of disease and so on are determined), an intervention phase and a monitoring phase (usually lasting 3 to 5 years). This design can accommodate certain comparisons, such as those of different planning approaches used in different districts. It offers the advantage of being less expensive than a controlled comparison, and, although the results do not lend themselves to the statistical analyses required by strict epidemiologic method, they do produce plausible inferences of great value to planners and policymakers.

EHIP will be distinguished from other before–after development studies by the quality and breadth of its baseline surveys and process measurements and the integration of these into the planning process. EHIP will make use of other research and data surveillance being conducted in Tanzania to compare trends in health status in the intervention districts with those in other districts.

A randomized controlled study design would be more desirable if the only outcome measure of the study were a change in the burden of disease resulting from the delivery of the package of essential health interventions. In EHIP it is assumed, on the basis of earlier studies, that the efficient delivery of these services will reduce the burden of disease. It is important to bear in mind that the central aim of EHIP is to test an analytic approach to *planning*.

Sustainability

The authors of *Investing in Health* estimated the annual per capita cost of the packages of essential clinical and public health interventions in low-income countries at $12 (US). There are various estimates of the current per capita expenditure on health in Tanzania, ranging from approximately $4 to $7 (US).[5]

It is not the intent of EHIP to raise the per capita spending level in the two study districts to $12 (US); an increase of this magnitude would depend on external assistance and is unlikely to be sustainable. In order to combine the aim of long-term sustainability with that of improving health care in the study districts, EHIP has set a target for an increase of $3 to $4 (US) annually in per capita health care spending over the study period.

If the principles of health care planning that are being tested through EHIP prove to be workable, this Canadian initiative could have practical implications for the improvement of health care resource allocation in low-income countries around the world. Given the critical need for improved health services in low-income countries and the growing competition for limited funds, new

approaches to planning health care and setting priorities are needed. EHIP provides an excellent opportunity to test the feasibility of such a new approach and to build upon the changes proposed under Tanzania's strategy for health care system reform.

References

1. Walt G, Gilson L: Reforming the health sector in developing countries: the central role of policy analysis. *Health Policy Plan* 1994; 9: 353–370
2. Nakajima H: Health, population, and development. [editorial] *Mag W H O* 1994; 47: 3
3. Muabe G, Wang'ombe J: *User Charges in Kenya — Health Service Pricing Reforms in Kenya: 1989-1993*, [report on work in progress] International Health Policy Program, Washington, 1995
4. World Bank: *World Development Report 1993: Investing in Health*, Oxford University Press, Oxford, England, 1993: 4–14
5. Murray CJL, Lopez AD (eds): *Global Comparative Assessments in the Health Sector — Disease Burden, Expenditures and Intervention Packages*, World Health Organization, Geneva, 1994
6. Musgrove P: *Cost-Effectiveness and Health Sector Reform*. World Bank HRO Working Paper no 48, World Bank, Washington, 1994
7. *Future Partnership for Acceleration of Health Development — Report of a Conference*, International Development Research Centre, Ottawa, Oct 18–20, 1993
8. Mosely WH, Bobadilla JL, Jamison DT: The health transition: implications for health policy in developing countries. In Mosely WH, Bobadilla JL, Jamison DT et al (eds): *Disease Control Priorities in Developing Countries*, Oxford Medical Publications, Oxford, England, 1993: 673–697

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Nov. 3–8, 1995: Hamilton Roentgen Centennial Celebration
Hamilton, Ont.
Dr. C.I. Doris, Hamilton Civic Hospitals, 237 Barton St. E, Hamilton ON L8L 2X2; tel 905 527-0271

Nov. 9–10, 1995: Developing Outcomes Measures and Return-to-Work Guidelines: Taking the Next Step in the Evolution of Your Workers' Compensation and Disability Programs
Boston
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Nov. 13–14, 1995: Best Practices in Medicaid Behavioural Health Managed Care
Lake Buena Vista, Fla.
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Du 20 au 23 nov. 1995 : Conférence internationale sur les conséquences sanitaires de l'accident de Tchernobyl et d'autres accidents radiologiques
Genève, Suisse
Langues : anglais, français et russe
Organisation mondiale de la santé bureau de l'information, Valery Abramov, tél 011 41 22 791-2543, ou Philippe Stroot, tél 011 41 22 791-2535, fax 011 41 22 791-4858

Nov. 20–23, 1995: International Conference on Health Consequences of the Chernobyl and Other Radiological Accidents
Geneva, Switzerland
Languages: English, French and Russian
World Health Organization Office of Information, Valery Abramov, tel 011 41 22 791-2543, or Philippe Stroot, tel 011 41 22 791-2535, fax 011 41 22 791-4858

Nov. 28–29, 1995: 5th IBC International Conference on Arthritis: Advances in Diagnosis and Treatment
New Orleans
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Nov. 30–Dec. 1, 1995: 3rd IBC International Symposium on Exploiting Transgenic Technology for Commercial Development
San Diego, Calif.
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Dec. 4–6, 1995: 6th IBC International Conference on Antibody Engineering: New Technology, Application and Commercialization
La Jolla, Calif.
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Dec. 8–11, 1996: 2nd National Canadian Conference on Immunization
Toronto
Mr. Chuck Schouwerwou, conference and committee coordinator, Childhood Immunization Division, Laboratory Centre for Disease Control, PL # 0603E1, Tunney's Pasture, Ottawa ON K1A 0L2; fax 613 998-6413

Dec. 11–12, 1995: Therapeutic Implications of Angiogenesis: Inhibitors and Stimulators
Philadelphia
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Dec. 13–14, 1995: IBC's 4th Annual Advances in the Understanding and Therapy of Ischemic Stroke
Philadelphia
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Dec. 15, 1995: Discoveries in Head Trauma: New Understanding for Novel Therapeutic Development
Philadelphia
International Business Communications USA Conferences Inc., 225 Turnpike Rd., Southborough MA 01772-1749; tel 508 481-6400, fax 508 481-7911

Feb. 4–8, 1996: 51st Annual Meeting of the Medical Society of Pan-American Doctors
Guadalajara, Mexico
Medical Society of Pan-American Doctors, PO Box 1419, Pincher Creek AB T0K 1W0; tel 403 627-3321 or 627-4039, fax 403 627-2280

Apr. 14, 1996: 8th Annual Symposium on Treatment of Headaches and Facial Pain
New York
Dr. Alexander Mauskop, director, New York Headache Center, 301 E 66 St., New York NY 10021; tel 212 794-3550